

# SEQUENCE LISTING

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          <221> unsure
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25      <223> n = a or t or g or c

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<220>

<223> A modified DNA sequence

35

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30

&lt;210&gt; 8

&lt;211&gt; 2176

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

35

&lt;220&gt;

&lt;223&gt; A modified DNA sequence

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&lt;210&gt; 9

&lt;211&gt; 14462

40

&lt;212&gt; DNA

## &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; A modified DNA sequence

5

&lt;400&gt; 9

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&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; A modified DNA sequence

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&lt;210&gt; 14

&lt;211&gt; 449

40

&lt;212&gt; PRT

<213> Artificial Sequence

<220>

<223> A polypeptide encoded by SEQ ID NO:3

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<400> 14

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Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys
10             20             25             30
Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile
  35             40             45
Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val
  50             55             60
15 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val
  65             70             75             80
Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala
  85             90             95
Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly
20             100            105            110
Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu
  115            120            125
Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe
  130            135            140
25 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met
  145            150            155            160
Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His
  165            170            175
Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys
30             180             185             190
Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His
  195            200            205
Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe
  210            215            220
35 Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu
  225            230            235            240
Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly
  245            250            255
Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe
40             260             265             270

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35

Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 50                      55                      60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65                      70                      75                      80  
 5 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
                     85                      90                      95  
 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
                     100                      105                      110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 10                      115                      120                      125  
 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
                     130                      135                      140  
 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145                      150                      155                      160  
 15 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
                     165                      170                      175  
 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
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 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 20                      195                      200                      205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
                     210                      215                      220  
 Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
 225                      230                      235                      240  
 25 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
                     245                      250                      255  
 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
                     260                      265                      270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 30                      275                      280                      285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
                     290                      295                      300  
 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305                      310                      315                      320  
 35 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
                     325                      330                      335  
 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Val  
                     340                      345                      350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 40                      355                      360                      365

Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 5 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 10 435 440 445  
 Arg

<210> 16  
 15 <211> 449  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 20 <223> A polypeptide encoded by SEQ ID NO:5

<400> 16  
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 25 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys  
 20 25 30  
 Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 35 40 45  
 Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 30 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65 70 75 80  
 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 85 90 95  
 35 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 115 120 125  
 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 40 130 135 140

40

<210> 17  
 <211> 449  
 <212> PRT  
 <213> Artificial Sequence

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<220>  
 <223> A polypeptide encoded by SEQ ID NO:6

<400> 17

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    Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys
          20             25             30
    Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile
15      35             40             45
    Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val
      50             55             60
    Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val
    65             70             75             80
20 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala
          85             90             95
    Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly
          100            105            110
    Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu
25      115            120            125
    Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe
      130            135            140
    His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met
    145            150            155            160
30 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His
          165            170            175
    Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys
          180            185            190
    Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His
35      195            200            205
    Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe
      210            215            220
    Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu
    225            230            235            240
40 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly
  
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                245                250                255
Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe
                260                265                270
Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg
5      275                280                285
Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn
      290                295                300
Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp
305                310                315                320
10 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met
      325                330                335
Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Val
      340                345                350
Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr
15      355                360                365
Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu
      370                375                380
Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro
385                390                395                400
20 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe
      405                410                415
Tyr Arg Ala Tyr Arg Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe
      420                425                430
Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp
25      435                440                445
Arg

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<210> 18

30 <211> 449

<212> PRT

<213> Artificial Sequence

<220>

35 <223> A polypeptide encoded by SEQ ID NO:7

<400> 18

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Met Asn Tyr Lys Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Thr Gln
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40 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Arg

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	20	25	30
	Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile		
	35	40	45
	Pro Ser Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val		
5	50	55	60
	Ile Val Ser Arg Gln Ser Asp Gly Ser Ile Arg Ala Phe Leu Asn Val		
	65	70	75
	Cys Arg His Arg Gly Lys Thr Leu Val Asn Ala Glu Ala Gly Asn Ala		
	85	90	95
10	Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly		
	100	105	110
	Glu Leu Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly Glu Ser Leu		
	115	120	125
	Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe		
15	130	135	140
	His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met		
	145	150	155
	Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Ile Phe Lys His		
	165	170	175
20	Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys		
	180	185	190
	Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His		
	195	200	205
	Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe		
25	210	215	220
	Ala Ser Leu Ala Gly Asn Ala Val Leu Pro Pro Glu Gly Ala Gly Leu		
	225	230	235
	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly		
	245	250	255
30	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe		
	260	265	270
	Gly Gly Ser Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg		
	275	280	285
	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn		
35	290	295	300
	Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp		
	305	310	315
	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met		
	325	330	335
40	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Val		

145                      150                      155                      160  
 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
                                  165                      170                      175  
 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 5                      180                      185                      190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
                                  195                      200                      205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
                                  210                      215                      220  
 10 Cys Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
      225                      230                      235                      240  
 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
                                  245                      250                      255  
 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 15                      260                      265                      270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
                                  275                      280                      285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
                                  290                      295                      300  
 20 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
      305                      310                      315                      320  
 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
                                  325                      330                      335  
 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Val  
 25                      340                      345                      350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
                                  355                      360                      365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
                                  370                      375                      380  
 30 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
      385                      390                      395                      400  
 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
                                  405                      410                      415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 35                      420                      425                      430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
                                  435                      440                      445  
 Arg

40

&lt;210&gt; 17

&lt;211&gt; 449

&lt;212&gt; PRT

	85	90	95
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	Glu Leu Gln Ser Val Pro Phe Glu Lys	Glu Leu Tyr Gly Glu Ser Leu	
5	115	120	125
	Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe		
	130	135	140
	His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Ser Leu Met		
	145	150	155
10	Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Ile Phe Lys His		
	165	170	175
	Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys		
	180	185	190
	Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His		
15	195	200	205
	Val Gly Trp Thr His Ala Ser Ser Leu Arg Thr Gly Glu Ser Ile Phe		
	210	215	220
	Ser Ser Leu Ala Gly Asn Ala Val Leu Pro Pro Glu Gly Ala Gly Leu		
	225	230	235
20	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly		
	245	250	255
	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe		
	260	265	270
	Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Pro		
25	275	280	285
	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn		
	290	295	300
	Ser Val Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp		
	305	310	315
30	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met		
	325	330	335
	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ala Val Gln Arg Thr Val		
	340	345	350
	Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr		
35	355	360	365
	Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Ile		
	370	375	380
	Ser Asn Leu Gly Phe Gly Lys Asp Val Tyr Gly Asp Ala Val Tyr Pro		
	385	390	395
40	Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe		
		400	

405                      410                      415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420                      425                      430  
 Glu Asp Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 5                      435                      440                      445  
 Arg

<210> 20  
 10 <211> 449  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 15 <223> A polypeptide encoded by SEQ ID NO:9

<400> 20  
 Met Asn Tyr Lys Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Thr Gln  
 1                      5                      10                      15  
 20 Lys His Leu Ile His Gly Gly Glu Gly Leu Phe Gln His Glu Leu Arg  
 20                      25                      30  
 Ala Val Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 35                      40                      45  
 Pro Ser Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 25 50                      55                      60  
 Ile Val Ser Arg Gln Ser Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65                      70                      75                      80  
 Cys Arg His Arg Gly Lys Thr Leu Val Asn Ala Glu Ala Gly Asn Ala  
 85                      90                      95  
 30 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100                      105                      110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly Glu Ser Leu  
 115                      120                      125  
 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 35 130                      135                      140  
 His Gly Phe Ile Tyr Ala Cys Ile Asp Gln Glu Ala Pro Ser Leu Met  
 145                      150                      155                      160  
 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Ile Phe Lys His  
 165                      170                      175  
 40 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys

	180	185	190
	Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His		
	195	200	205
	Val Gly Trp Thr His Ala Ser Ser Leu Cys Thr Gly Glu Ser Ile Phe		
5	210	215	220
	Ser Ser Leu Ala Gly Asn Ala Val Leu Pro Pro Glu Gly Ala Gly Leu		
	225	230	235
	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly		
	245	250	255
10	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe		
	260	265	270
	Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg		
	275	280	285
	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn		
15	290	295	300
	Ser Val Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp		
	305	310	315
	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met		
	325	330	335
20	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ala Val Gln Arg Thr Val		
	340	345	350
	Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr		
	355	360	365
	Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Ile		
25	370	375	380
	Ser Asn Leu Gly Phe Gly Lys Asp Val Tyr Gly Asp Ala Val Tyr Pro		
	385	390	395
	Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe		
	405	410	415
30	Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe		
	420	425	430
	Glu Asp Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp		
	435	440	445
	Arg		
35			

&lt;210&gt; 21

&lt;211&gt; 449

&lt;212&gt; PRT

40 &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; A polypeptide encoded by SEQ ID NO:10

&lt;400&gt; 21

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5 Met Asn Tyr Lys Asn Lys Asn Leu Val Ser Glu Ser Gly Leu Thr Gln
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Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln Arg Glu Leu Glu
  20             25             30
Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile
10             35             40             45
Pro Ser Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Val Asp Glu Val
  50             55             60
Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val
65             70             75             80
15 Cys Arg His Arg Gly Lys Thr Leu Val His Ala Glu Ala Gly Asn Ala
  85             90             95
Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ala Asn Gly
 100            105            110
Glu Leu Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly Glu Ala Leu
20            115            120            125
Asp Lys Lys Cys Met Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe
 130            135            140
His Gly Phe Ile Tyr Gly Cys Phe Asp Glu Glu Ala Pro Ser Leu Lys
145            150            155            160
25 Asp Tyr Met Gly Asp Ala Gly Trp Tyr Leu Glu Pro Met Phe Lys His
 165            170            175
Ser Gly Gly Leu Glu Leu Ile Gly Pro Pro Gly Lys Val Ile Ile Lys
 180            185            190
Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Thr Gly Asp Ala Tyr His
30            195            200            205
Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Gln Ser Val Phe
 210            215            220
Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu
225            230            235            240
35 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly
 245            250            255
Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe
 260            265            270
Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Glu Val Arg
40            275            280            285

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Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
 290 295 300  
 Ser Phe Leu Thr Cys Ser Gly Val Phe Lys Val Trp His Pro Ile Asp  
 305 310 315 320  
 5 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Met Val Glu Lys Asp Met  
 325 330 335  
 Pro Glu Asp Leu Lys Arg Arg Leu Val Asp Ala Val Gln Arg Thr Val  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 10 355 360 365  
 Val Ser Gln Asn Ala Lys Lys Tyr Gln Ser Arg Asp Gly Asp Leu Val  
 370 375 380  
 Ser Asn Leu Gly Phe Gly Gly Asp Val Tyr Gly Asp Glu Val Tyr Pro  
 385 390 395 400  
 15 Gly Ile Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 Tyr Arg Ala Tyr Gly Ala His Ile Ser Ser Ser Ser Trp Ala Glu Phe  
 420 425 430  
 Glu Asp Val Ser Lys Asn Trp His Thr Glu Leu Ala Lys Thr Thr Asp  
 20 435 440 445  
 Arg

<210> 22  
 25 <211> 447  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 30 <223> A polypeptide encoded by SEQ ID NO:11

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 35 Leu Ile His Gly Asp Lys Glu Leu Phe Gln His Glu Leu Lys Thr Ile  
 20 25 30  
 Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile Pro Ser  
 35 40 45  
 Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Val Asp Glu Val Ile Val  
 40 50 55 60



Ser Arg Gln Asn Asp Gly Ser Val Arg Ala Phe Leu Asn Val Cys Arg  
 65 70 75 80  
 His Arg Gly Lys Thr Leu Val His Ala Glu Ala Gly Asn Ala Lys Gly  
 85 90 95  
 5 Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly Glu Leu  
 100 105 110  
 Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly Asp Thr Ile Lys Lys  
 115 120 125  
 Lys Cys Leu Gly Leu Lys Glu Val Pro Arg Ile Glu Ser Phe His Gly  
 10 130 135 140  
 Phe Ile Tyr Gly Cys Phe Asp Ala Glu Ala Pro Thr Leu Val Asp Tyr  
 145 150 155 160  
 Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Ile Phe Lys His Ser Gly  
 165 170 175  
 15 Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys Ala Asn  
 180 185 190  
 Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His Val Gly  
 195 200 205  
 Trp Thr His Ala Ser Ser Leu Arg Ser Gly Gln Ser Ile Phe Thr Pro  
 20 210 215 220  
 Leu Ala Gly Asn Ala Met Leu Pro Pro Glu Gly Ala Gly Leu Gln Met  
 225 230 235 240  
 Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly Tyr Ser  
 245 250 255  
 25 Gly Val His Ser Ala Asp Leu Val Pro Glu Met Met Ala Phe Gly Gly  
 260 265 270  
 Ala Lys Gln Glu Lys Leu Ala Lys Glu Ile Gly Asp Val Arg Ala Arg  
 275 280 285  
 Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn Ser Ile  
 30 290 295 300  
 Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp Glu Asn  
 305 310 315 320  
 Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met Pro Glu  
 325 330 335  
 35 Asp Leu Lys Arg Arg Leu Ala Asp Ala Val Gln Arg Thr Val Gly Pro  
 340 345 350  
 Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr Glu Ser  
 355 360 365  
 Gln Asn Ala Lys Lys Tyr Gln Ser Ser Asn Ser Asp Leu Ile Ala Asn  
 40 370 375 380

Leu Gly Phe Gly Lys Asp Val Tyr Gly Asp Glu Cys Tyr Pro Gly Val  
 385 390 395 400  
 Val Ala Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe Tyr Arg  
 405 410 415  
 5 Ala Tyr Gln Ala His Ile Ser Ser Ser Asn Trp Ala Glu Phe Glu Asn  
 420 425 430  
 Thr Ser Arg Asn Trp His Thr Glu Leu Thr Lys Thr Thr Asp Arg  
 435 440 445

10 <210> 23  
 <211> 447  
 <212> PRT  
 <213> Artificial Sequence

15 <220>  
 <223> A polypeptide encoded by SEQ ID NO:12

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 20 25 30  
 Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile Pro Ser  
 35 40 45  
 25 Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Val Asp Glu Val Ile Val  
 50 55 60  
 Ser Arg Gln Asn Asp Gly Ser Val Arg Ala Phe Leu Asn Val Cys Arg  
 65 70 75 80  
 His Arg Gly Lys Thr Leu Val His Thr Glu Ala Gly Asn Ala Lys Gly  
 30 85 90 95  
 Phe Val Cys Gly Tyr His Gly Trp Gly Tyr Gly Ser Asn Gly Glu Leu  
 100 105 110  
 Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly Asp Ala Ile Lys Lys  
 115 120 125  
 35 Lys Cys Leu Gly Leu Lys Glu Val Pro Arg Ile Glu Ser Phe His Gly  
 130 135 140  
 Phe Ile Tyr Gly Cys Phe Asp Ala Glu Ala Pro Pro Leu Ile Asp Tyr  
 145 150 155 160  
 Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Thr Phe Lys His Ser Gly  
 40 165 170 175

Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Val Lys Ala Asn  
 180 185 190  
 Trp Lys Pro Phe Ala Glu Asn Phe Val Gly Asp Ile Tyr His Val Gly  
 195 200 205  
 5 Trp Thr His Ala Ala Ala Leu Arg Ala Gly Gln Ser Val Phe Ser Ser  
 210 215 220  
 Leu Ala Gly Asn Ala Lys Leu Pro Pro Glu Gly Ala Gly Leu Gln Met  
 225 230 235 240  
 Thr Ser Lys Tyr Gly Ser Gly Met Gly Leu Thr Trp Asp Tyr Tyr Ser  
 10 245 250 255  
 Gly Asn Phe Ser Ala Asp Met Val Pro Asp Leu Met Ala Phe Gly Ala  
 260 265 270  
 Ala Lys Gln Glu Lys Leu Ala Lys Glu Ile Gly Asp Val Arg Ala Arg  
 275 280 285  
 15 Ile Tyr Arg Ser Ile Leu Asn Gly Thr Val Phe Pro Asn Asn Ser Phe  
 290 295 300  
 Leu Thr Gly Ser Ala Thr Phe Lys Val Trp Asn Pro Ile Asp Glu Asn  
 305 310 315 320  
 Thr Thr Glu Val Trp Thr Tyr Ala Phe Val Glu Lys Asp Met Pro Glu  
 20 325 330 335  
 Asp Leu Lys Arg Arg Leu Ala Asp Ala Ala Gln Arg Ser Val Gly Pro  
 340 345 350  
 Ala Gly Phe Trp Glu Ser Asp Asp Asn Glu Asn Met Glu Thr Leu Ser  
 355 360 365  
 25 Gln Asn Ala Lys Lys Tyr Gln Ser Ser Asn Ser Asp Gln Ile Ala Ser  
 370 375 380  
 Leu Gly Phe Gly Lys Asp Val Tyr Gly Asp Glu Cys Tyr Pro Gly Val  
 385 390 395 400  
 Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe Tyr Arg  
 30 405 410 415  
 Ala Tyr Gln Ala His Ile Ser Ser Ser Asn Trp Ala Glu Phe Glu Asn  
 420 425 430  
 Ala Ser Arg Asn Trp His Thr Glu Leu Thr Lys Thr Thr Asp Arg  
 435 440 445

35

&lt;210&gt; 24

&lt;211&gt; 451

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

40

&lt;220&gt;

&lt;223&gt; A polypeptide encoded by SEQ ID NO:13

&lt;400&gt; 24

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5 Met Arg Gln Ala Ile Met Ser Tyr Gln Asn Leu Val Ser Glu Ala Gly
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Leu Thr Gln Lys His Leu Ile Tyr Gly Asp Lys Glu Leu Phe Gln His
  20           25           30
Glu Leu Lys Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp
10           35           40           45
Ser Leu Ile Pro Ser Pro Gly Asp Tyr Val Lys Ala Lys Met Gly Val
  50           55           60
Asp Glu Val Ile Val Ser Arg Gln Asn Asp Gly Ser Val Arg Ala Phe
65           70           75           80
15 Leu Asn Val Cys Arg His Arg Gly Lys Thr Ile Val Asp Ala Glu Ala
  85           90           95
Gly Asn Ala Lys Gly Phe Val Cys Gly Tyr His Gly Trp Gly Tyr Gly
  100          105          110
Ser Asn Gly Glu Leu Gln Ser Val Pro Phe Glu Lys Glu Leu Tyr Gly
20          115          120          125
Asp Ala Ile Lys Lys Lys Cys Leu Gly Leu Lys Glu Val Pro Arg Ile
  130          135          140
Glu Ser Phe His Gly Phe Ile Tyr Gly Cys Phe Asp Ala Glu Ala Pro
145          150          155          160
25 Pro Leu Ile Asp Tyr Leu Gly Asp Val Ala Trp Tyr Leu Glu Pro Thr
  165          170          175
Phe Lys His Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Ala Lys Val
  180          185          190
Val Val Lys Gly Asn Trp Lys Val Phe Ala Glu Asn Phe Val Gly Asp
30          195          200          205
Ile Tyr His Ile Gly Trp Thr His Ala Ser Ile Leu Arg Ala Gly Gln
  210          215          220
Ala Ile Phe Ala Pro Leu Ala Gly Asn Ala Met Leu Pro Pro Glu Gly
225          230          235          240
35 Thr Gly Leu Gln Ala Thr Thr Lys Tyr Gly Ser Gly Ile Gly Val Ser
  245          250          255
Leu Asp Ala Tyr Ser Gly Val Gln Ser Ala Asp Leu Val Pro Glu Met
  260          265          270
Met Ala Phe Gly Gly Ala Lys Gln Glu Lys Leu Ala Lys Glu Ile Gly
40          275          280          285

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Asp Val Arg Ala Arg Ile Tyr Arg Ser Gln Val Asn Gly Thr Val Phe  
 290 295 300  
 Pro Asn Asn Cys Phe Leu Thr Gly Ala Gly Val Phe Lys Val Phe Asn  
 305 310 315 320  
 5 Pro Ile Asp Glu Asn Thr Thr Glu Ala Trp Thr Tyr Ala Ile Val Glu  
 325 330 335  
 Lys Asp Met Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ala Ala Gln  
 340 345 350  
 Arg Ser Val Gly Pro Ala Gly Tyr Trp Glu Ser Asp Asp Asn Asp Asn  
 10 355 360 365  
 Met Val Leu Ser Gln Asn Ala Lys Lys Tyr Gln Ser Ser Asn Ser Asp  
 370 375 380  
 Leu Ile Ala Asp Leu Gly Phe Gly Lys Asp Val Tyr Gly Asp Glu Cys  
 385 390 395 400  
 15 Tyr Pro Gly Val Val Ser Lys Ser Ala Phe Ser Glu Thr Asn His Arg  
 405 410 415  
 Gly Phe Tyr Arg Ala Tyr Gln Ala His Ile Ser Ser Ser Asn Trp Ala  
 420 425 430  
 Glu Phe Glu Asn Thr Ser Arg Asn Trp His Thr Glu Leu Thr Lys Thr  
 20 435 440 445  
 Thr Asp Arg  
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<210> 25  
 25 <211> 2265  
 <212> DNA  
 <213> Pseudomonas sp.

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 cgcgtaatga ttgatttgag ctaagaattt taacaggagg caccctgggc cctagagcgt 180  
 aatcaccccc attccatctt ttttaggtga aaacatgaat tacaataata aaatcttggt 240  
 aagtgaatct ggtctgagcc aaaagcacct gattcatggc gatgaagaac tttccaaca 300  
 35 tgaactgaaa accatttttg cgcggaactg gctttttctc actcatgata gcctgattcc 360  
 tgcccccggc gactatgtta ccgcaaaaat ggggattgac gaggtcatcg tctcccgga 420  
 gaacgacggg tcgattcgtg cttttctgaa cgtttgccg catcgtggca agacgctggg 480  
 gagcgtggaa gccggcaatg ccaaagggtt tgtttgcagc tatcacggct ggggcttcgg 540  
 ctccaacggg gaactgcaga gcgttccatt tgaaaaagat ctgtacggcg agtcgctcaa 600  
 40 taaaaaatgt ctgggggtga aagaagtcgc tcgcgtggag agcttccatg gcttcatcta 660

cggttgcttc gaccaggagg cccctcctct tatggactat ctgggtgacg ctgcttggtg 720  
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 25 cagcgattcg tcgattacc agagcgcata cttcagacgc acaatctgat ggtctttctg 2160  
 tgattcagt accattttta caaatggtca ctgcaaccgc ggtcaccatt aatcaaaggg 2220  
 aatgtacgtg tatgggcaat caacaagtcg ttctgataac cggtg 2265

<210> 26

30 <211> 449

<212> PRT

<213> *Pseudomonas* sp.

<400> 26

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5

10

15

Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys

20

25

30

Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile

40

35

40

45

Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65 70 75 80  
 5 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 85 90 95  
 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 10 115 120 125  
 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 130 135 140  
 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145 150 155 160  
 15 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
 165 170 175  
 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 180 185 190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 20 195 200 205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
 210 215 220  
 Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
 225 230 235 240  
 25 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
 245 250 255  
 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 260 265 270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 30 275 280 285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
 290 295 300  
 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305 310 315 320  
 35 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
 325 330 335  
 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Phe  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 40 355 360 365

Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 5 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 10 435 440 445  
 Arg

<210> 27

15 <211> 2265

<212> DNA

<213> Artificial Sequence

<220>

20 <223> A modified DNA sequence

<400> 27

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25	cgcgtaataa ttgatttgag ctaagaattt taacaggagg caccocgggc cctagagcgt	180
	aatcaccccc attccatctt ttttaggtga aaacatgaat tacaataata aaatcttggt	240
	aagtgaatct ggtctgagcc aaaagcacct gattcatggc gatgaagaac tttccaaca	300
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	tgcccccggc gactatgtta ccgcaaaaat ggggattgac gaggtcatcg tctccccgca	420
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	gagcgtggaa gccggcaatg ccaaagggtt tgtttgcagc tatcacggct ggggcttcgg	540
	ctccaacggt gaactgcaga gcgttcatt tgaaaaagat ctgtacggcg agtcgctcaa	600
	taaaaaatgt ctgggggtga aagaagtcgc tcgcgtggag agcttccatg gcttcatcta	660
	cggttgcttc gaccaggagg cccctcctct tatggactat ctgggtgacg ctgcttggtg	720
35	cctggaacct atgttcaagc attccggcgg tttagaactg gtcggtcctc caggcaagg	780
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	gggttgagcg cagcgtctct cgcttcgctc gggggagtct atcttctcgt cgctcgctgg	900
	caatgcggcg ctaccacctg aaggcgcagg cttgcaaatg acctccaaat acggcagcgg	960
	catgggtgtg ttgtgggacg gatattcagg tgtgcatagc gcagacttgg ttccggaatt	1020
40	gatggcattc ggaggcgcaa agcaggaaa gctgaacaaa gaaattggcg atgttcgcgc	1080



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 5 ttccgaaaaac ggcaagaaat atcaatcaag agatagtgat ctgctttcaa accttgggtt 1380  
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<210> 28

<211> 2265

<212> DNA

25 <213> Artificial Sequence

<220>

<223> A modified DNA sequence

30 <400> 28

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taaaaaatgt ctgggggtga aagaagtcgc tcgcgtggag agcttccatg gcttcatcta 660  
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30 <210> 29  
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 <213> Artificial Sequence

35 <220>  
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	cgcgtaatga ttgatttgag ctaagaattt taacaggagg caccocgggc cctagagcgt	180
	aatcaccccc attccatctt ttttaggtga aaacatgaat tacaataata aaatcttggt	240
	aagtgaatct ggtctgagcc aaaagcacct gattcatggc gatgaagaac tttccaaca	300
	tgaactgaaa accatttttg cgcggaactg gctttttctc actcatgata gcctgattcc	360
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	gagcgtggaa gccggcaatg ccaaagggtt tgtttgcagc tatcacggct ggggcttcgg	540
	ctccaacggg gaactgcaga gcgttcatt tgaaaaagat ctgtacggcg agtcgctcaa	600
	taaaaaatgt ctgggggtga aagaagtcgc tcgcgtggag agcttccatg gcttcatcta	660
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	cctggaacct atgttcaagc attccggcgg tttagaactg gtcggtcctc caggcaagg	780
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&lt;210&gt; 30

&lt;211&gt; 2265

40

&lt;212&gt; DNA

## &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; A modified DNA sequence

5

&lt;400&gt; 30

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	cgcgtaaatga ttgatttgag ctaagaattt taacaggagg caccctgggc cctagagcgt	180
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	tgaactgaaa accatttttg cgcggaactg gctttttctc actcatgata gcctgattcc	360
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15	gagcgtggaa gccggcaatg ccaaagggtt tgtttgcagc tatcacggct ggggcttcgg	540
	ctccaacggg gaactgcaga gcgttcatt tgaaaaagat ctgtacggcg agtcgctcaa	600
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	cctggaacct atgttcaagc attccggcgg tttagaactg gtcggtcctc caggcaaggg	780
20	tgtgatcaag gccaactgga aggcaccgcg ggaaaacttt gtgggagatg cataccacgt	840
	gggttgagcg cagcgtctct cgttcgcctc gggggagtcct atcttctcgt cgctcgctgg	900
	caatgcggcg ctaccacctg aaggcgcagg cttgcaaatg acctccaat acggcagcgg	960
	catgggtgtg ttgtgggacg gatattcagg tgtgcatagc gcagacttgg ttccggaatt	1020
	gatggcattc ggaggcgcaa agcaggaaag gctgaacaaa gaaattggcg atgttcgcgc	1080
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&lt;210&gt; 31

&lt;211&gt; 2265

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

10

&lt;220&gt;

&lt;223&gt; A modified DNA sequence

&lt;400&gt; 31

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<210> 32

15 <211> 449

<212> PRT

<213> Artificial Sequence

<220>

20 <223> A polypeptide encoded by SEQ ID NO:27

<400> 32

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25 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys
    20             25             30
Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile
    35             40             45
Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val
30  50             55             60
Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val
65             70             75             80
Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala
    85             90             95
35 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly
    100            105            110
Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu
    115            120            125
Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe
40  130            135            140

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His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145 150 155 160  
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 165 170 175  
 5 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 180 185 190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 195 200 205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
 10 210 215 220  
 Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
 225 230 235 240  
 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
 245 250 255  
 15 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 260 265 270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 275 280 285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
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 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305 310 315 320  
 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
 325 330 335  
 25 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Gly  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 355 360 365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 30 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 35 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
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 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
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Arg

<210> 33  
 <211> 449  
 <212> PRT  
 <213> Artificial Sequence

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<220>  
 <223> A polypeptide encoded by SEQ ID NO:28

<400> 33

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    Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys
        20             25             30
    Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile
15      35             40             45
    Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val
        50             55             60
    Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val
    65             70             75             80
20 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala
        85             90             95
    Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly
        100            105            110
    Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu
25      115            120            125
    Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe
        130            135            140
    His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met
    145            150            155            160
30 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His
        165            170            175
    Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys
        180            185            190
    Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His
35      195            200            205
    Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe
        210            215            220
    Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu
    225            230            235            240
40 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly
  
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245 250 255  
 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 260 265 270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 5 275 280 285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
 290 295 300  
 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305 310 315 320  
 10 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
 325 330 335  
 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Ala  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 15 355 360 365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 20 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 25 435 440 445  
 Arg

<210> 34

30 <211> 449

<212> PRT

<213> Artificial Sequence

<220>

35 <223> A polypeptide encoded by SEQ ID NO:29

<400> 34

Met Asn Tyr Asn Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Ser Gln

1

5

10

15

40 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys

	20		25		30
	Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile				
	35		40		45
	Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val				
5	50		55		60
	Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val				
	65		70		75
	Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala				
		85		90	
10	Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly				
		100		105	
	Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu				
		115		120	
	Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe				
15	130		135		140
	His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met				
	145		150		155
	Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His				
		165		170	
20	Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys				
		180		185	
	Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His				
		195		200	
	Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe				
25	210		215		220
	Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu				
	225		230		235
	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly				
		245		250	
30	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe				
		260		265	
	Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg				
		275		280	
	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn				
35	290		295		300
	Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp				
	305		310		315
	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met				
		325		330	
40	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Thr				

340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 355 360 365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 5 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 10 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 435 440 445  
 Arg  
 15  
 <210> 35  
 <211> 449  
 <212> PRT  
 20 <213> Artificial Sequence  
 <220>  
 <223> A polypeptide encoded by SEQ ID NO:30  
 25 <400> 35  
 Met Asn Tyr Asn Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Ser Gln  
 1 5 10 15  
 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys  
 20 25 30  
 30 Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 35 40 45  
 Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 35 65 70 75 80  
 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 85 90 95  
 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 40 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu

	115	120	125
	Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe		
	130	135	140
	His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met		
5	145	150	155
	Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His		160
	165	170	175
	Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys		
	180	185	190
10	Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His		
	195	200	205
	Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe		
	210	215	220
	Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu		
15	225	230	235
	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly		240
	245	250	255
	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe		
	260	265	270
20	Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg		
	275	280	285
	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn		
	290	295	300
	Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp		
25	305	310	315
	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met		320
	325	330	335
	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Leu		
	340	345	350
30	Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr		
	355	360	365
	Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu		
	370	375	380
	Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro		
35	385	390	395
	Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe		400
	405	410	415
	Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe		
	420	425	430
40	Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp		

435 440 445

Arg

5 <210> 36  
 <211> 449  
 <212> PRT  
 <213> Artificial Sequence

10 <220>  
 <223> A polypeptide encoded by SEQ ID NO:31

<400> 36

Met Asn Tyr Asn Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Ser Gln  
 15 1 5 10 15  
 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys  
 20 25 30  
 Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 35 40 45  
 20 Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65 70 75 80  
 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 25 85 90 95  
 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 115 120 125  
 30 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 130 135 140  
 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145 150 155 160  
 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
 35 165 170 175  
 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 180 185 190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 195 200 205  
 40 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe

	210	215	220
	Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu		
	225	230	235 240
	Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly		
5	245	250	255
	Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe		
	260	265	270
	Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg		
	275	280	285
10	Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn		
	290	295	300
	Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp		
	305	310	315 320
	Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met		
15	325	330	335
	Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Ile		
	340	345	350
	Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr		
	355	360	365
20	Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu		
	370	375	380
	Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro		
	385	390	395 400
	Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe		
25	405	410	415
	Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe		
	420	425	430
	Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp		
	435	440	445

30 Arg

&lt;210&gt; 37

&lt;211&gt; 22

35 &lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

40

<400> 37  
 ttcagcgaac ggtcgggcct gc 22

5 <210> 38  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

10 <220>  
 <223> An oligonucleotide

<400> 38  
 gccgggcctc ttgcgggata tcgtcca 27

15 <210> 39  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

20 <220>  
 <223> An oligonucleotide

<400> 39  
 gttgccattg ctgcaggcat cgtggtg 27

25 <210> 40  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

30 <220>  
 <223> An oligonucleotide

<400> 40  
 35 gaggcacccg cggaagcttt tgtgggagat gca 33

<210> 41  
 <211> 30  
 <212> DNA  
 40 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

&lt;400&gt; 41

5 gcacccgcgg aacaatttgt gggagatgca

30

&lt;210&gt; 42

&lt;211&gt; 21

&lt;212&gt; DNA

10 &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

15 &lt;400&gt; 42

ccgcggaaag ctttgtggga g

21

&lt;210&gt; 43

&lt;211&gt; 24

20 &lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

25

&lt;400&gt; 43

ccgcggaaaa gcttgtggga gatg

24

&lt;210&gt; 44

30 &lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

35 &lt;223&gt; An oligonucleotide

&lt;400&gt; 44

cgcggaac gttgtgggag atg

23

40 &lt;210&gt; 45



<213> Artificial Sequence

<223> An oligonucleotide

atattcaggt gcgcatagcg cag

23

<213> Artificial Sequence

<223> An oligonucleotide

20 ggacggatat tcagggctcc atagcgcaga cttg

34

25      <213> Artificial Sequence

<223> An oligonucleotide

gacggatatt caggtaacca tagcgcagac ttg

33

<213> Artificial Sequence

<223> An oligonucleotide

40

	<400> 48	
	ggtgttttca aagtcgcgaa cccgatcgac	30
	<210> 49	
5	<211> 26	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
10	<223> An oligonucleotide	
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	ctgttcagcg aaacttcggg cctgct	26
15	<210> 50	
	<211> 26	
	<212> DNA	
	<213> Artificial Sequence	
20	<220>	
	<223> An oligonucleotide	
	<400> 50	
	ctgttcagcg aaggttcggg cctgct	26
25	<210> 51	
	<211> 26	
	<212> DNA	
	<213> Artificial Sequence	
30	<220>	
	<223> An oligonucleotide	
	<400> 51	
35	ctgttcagcg aagcttcggg cctgct	26
	<210> 52	
	<211> 22	
	<212> DNA	
40	<213> Artificial Sequence	

&lt;220&gt;

&lt;223&gt; An oligonucleotide

&lt;400&gt; 52

5 ttcagcgaac gctcgggcct gc

22

&lt;210&gt; 53

&lt;211&gt; 30

&lt;212&gt; DNA

10 &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

15 &lt;400&gt; 53

ggcctgctgg cttcgcggaa agcgacgaca

30

&lt;210&gt; 54

&lt;211&gt; 21

20 &lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

25

&lt;400&gt; 54

gaaagcgacg ccaatgacaa t

21

&lt;210&gt; 55

30 &lt;211&gt; 30

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

35 &lt;223&gt; An oligonucleotide

&lt;400&gt; 55

acgacaatga caattgggaa acagcttcgc

30

40 &lt;210&gt; 56

&lt;211&gt; 2265

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

5 &lt;220&gt;

&lt;223&gt; A modified DNA sequence

&lt;400&gt; 56

	gagggtagag aaatcgaatg ccccttgcac caaggtcggg ttgacgtttg cacaggcaaa	60
10	gccctgtgag caccctgcac acagaacatc aaaacatata cagtcaagat tgagaacctg	120
	cgcgtaatga ttgatttgag ctaagaattt taacaggagg caccctgggc cctagagcgt	180
	aatcaccccc attccatctt ttttaggtga aaacatgaat tacaataata aaatcttggt	240
	aagtgaatct ggtctgagcc aaaagcacct gattcatggc gatgaagaac ttttccaaca	300
	tgaactgaaa accatttttg cgcggaactg gctttttctc actcatgata gcctgattcc	360
15	tgcccccggc gactatgtta ccgcaaaaat ggggattgac gaggtcatcg tctcccgga	420
	gaacgacggg tgcattcgtg cttttctgaa cgtttgccgg catcgtggca agacgctggg	480
	gagcgtggaa gccggcaatg ccaaagggtt tgtttgagc tatcacggct ggggcttcgg	540
	ctccaacggg gaactgcaga gcgttccatt tgaaaagat ctgtacggcg agtcgctcaa	600
	taaaaaatgt ctgggggtga aagaagtcgc tcgcgtggag agcttccatg gcttcatcta	660
20	cggttgcttc gaccaggagg cccctcctct tatggactat ctgggtgacg ctgcttggtta	720
	cctggaacct atgttcaagc attccggcgg tttagaactg gtcggtcctc caggcaagg	780
	tgtgatcaag gccaaactga aggcacccgc ggaaaacttt gtgggagatg cataccacgt	840
	gggttgagc cagcgtctt cgcttcgctc gggggagtct atcttctcgt cgctcgctgg	900
	caatgcggcg ctaccacctg aaggcgcagg cttgcaaatg acctccaaat acggcagcgg	960
25	catgggtgtg ttgtgggacg gatattcagg tgtgcatagc gcagacttgg ttccggaatt	1020
	gatggcattc ggaggcgcaa agcaggaaag gctgaacaaa gaaattggcg atgttcgagc	1080
	tcggatttat cgcagccacc tcaactgcac cgttttcccg aacaacagca tgctgacctg	1140
	ctcgggtgtt ttcaaagtat ggaaccgat cgacgcaaac accaccgagg tctggacctta	1200
	cgccattgtc gaaaaagaca tgcttgagga tctcaagcgc cgcttgcccg actctgttca	1260
30	gcgaacgtgg gggcctgctg gcttctggga aagcgacgac aatgacaata tggaacagc	1320
	ttcgcaaaac ggcaagaaat atcaatcaag agatagtgat ctgctttcaa accttggttt	1380
	cggtgaggac gtatacggcg acgcggtcta tccaggcgtc gtcggcaaat cggcgatcgg	1440
	cgagaccagt tatcgtggtt tctaccgggc ttaccaggca cacgtcagca gctccaactg	1500
	ggctgagttc gagcatgcct ctagtacttg gcatactgaa cttacgaaga ctactgatcg	1560
35	ctaacagacg agtcgacct gatgatcaat attcaagaag acaagctggg ttccgcccac	1620
	gacgccgaag agattcttcg tttcttcaat tgccacgact ctgctttgca acaagaagcc	1680
	actacgtgc tgaccaggga agcgcatttg ttggacattc aggcttaccg tgcttggtta	1740
	gagcactcgc tggggtcaga ggtgcaatat caggtcattt cacgcgaact gcgcgcagct	1800
	tcagagcgtc gttataagct caatgaagcc atgaacgttt acaacgaaaa ttttcagcaa	1860
40	ctgaaagtgc gagttgagca tcaactggat ccgcaaaact ggggcaacag cccgaagctg	1920

cgctttactc gctttatcac caacgtccag gccgcaatgg acgtaaataa caaagagcta 1980  
 cttcacatcc gctccaacgt cattctgcac cgggcacgac gtggcaatca ggtcgatgtc 2040  
 ttctacgccg cccgggaaga taaatggaaa cgtggcgaag gtggagtacg aaaattggtc 2100  
 cagcgattcg tcgattaccc agagcgcata cttcagacgc acaatctgat ggtctttctg 2160  
 5 tgattcagt accattttta caaatggta ctgcaaccgc ggtcaccatt aatcaaagg 2220  
 aatgtacgtg tatgggcaat caacaagtcg tttcgataac cgggtg 2265

<210> 57

<211> 2265

10 <212> DNA

<213> Artificial Sequence

<220>

<223> A modified DNA sequence

15

<400> 57

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 gccctgtgcg caccctgtac acagaacatc aaaacatatc cagtcaagat tgagaacctg 120  
 cgcgtaatga ttgatttgag ctaagaatct taacaggagg caccctgggc cctagagcgt 180  
 20 aatcaccccc attccatctt ttttaggtga aaacatgaat tacaataata aaatcttggg 240  
 aagtgaatct ggtctgagcc aaaagcacct gattcatggc gatgaagaac tttccaaca 300  
 tgaactgaaa accatttttg cgcggaactg gctttttctc actcatgata gcctgattcc 360  
 tgcccccggc gactatgtta ccgcaaaaat ggggattgac gaggtcatcg tctcccgga 420  
 gaacgacggg tcgattcgtg cttttctgaa cgtttgccgg catcgtggca agacgctggg 480  
 25 gagcgtggaa gccggcaatg ccaaagggtt tgtttgcagc tatcacgggt ggggcttcgg 540  
 ctccaacggg gaactgcaga gcgttcattc tgaaaagat ctgtacggcg agtcgctcaa 600  
 taaaaaatgt ctgggggtga aagaagtgcg tcgcgtggag agcttccatg gcttcacta 660  
 cggttgcttc gaccaggagg cccctcctct tatggactat ctgggtgacg ctgcttggtg 720  
 cctggaacct atgttcaagc attccggcgg tttagaactg gtcggtcctc caggcaagg 780  
 30 tgtgatcaag gccaaactga aggcaccgcg ggaaaacttt gtgggagatg cataccacgt 840  
 ggggttgacg cagcgcgtct cgcttcgctc gggggagtct atcttctcgt cgtcgcgtgg 900  
 caatgcggcg ctaccacctg aaggcgcagg cttgcaaatg acctccaaat acggcagcgg 960  
 catgggtgtg ttgtgggacg gatattcagg tgtgcatagc gcagacttgg ttccggaatt 1020  
 gatggcattc ggaggcgcaa agcaggaaag gctgaacaaa gaaattggcg atgttcgcgc 1080  
 35 tcggatttat cgcagccacc tcaactgcac cgttttcccg aacaacagca tgetgacctg 1140  
 ctgggtgttt ttcaaagtat ggaaccgatg cgacgcaaac accaccgagg tctggacctg 1200  
 cgccattgtc gaaaaagaca tgcctgagga tctcaagcgc cgcttgcccg actctgttca 1260  
 gcgaacgggt gggcctgctg gcttctggga aagcgacgac aatgacaata tggaaacagc 1320  
 ttcgcaaaac ggcaagaaat atcaatcaag agatagtgat ctgctttcaa accttggttt 1380  
 40 cgggtaggac gtatacggcg acgcggtcta tccaggcgtc gtcggcaaat cggcgatcgg 1440

cgagaccagt tatcgtgggt tctaccgggc ttaccaggca cacgtcagca gctccaactg 1500  
 ggctgagttc gagcatgect ctactacttg gcatactgaa cttacgaaga ctactgatcg 1560  
 ctaacagacg agtcgaccat gatgatcaat attcaagaag acaagctggg ttcgcccac 1620  
 gagccgaag agattcttcg tttcttcaat tgccacgact ctgctttgca acaagaagcc 1680  
 5 actacgctgc tgaccaggga agcgcatttg ttggacattc aggcttaccg tgcttggtta 1740  
 gagcactgcg tggggtcaga ggtgcaatat caggtcattt cgcgcgaact gcgcgcagct 1800  
 tcagagcgtc gttataagct caatgaagcc atgaacgttt acaacgaaaa ttttcagcaa 1860  
 ctgaaagttc gagttgagca tcaactggat ccgcaaaact ggggcaacag cccgaagctg 1920  
 cgctttactc gctttatcac caacgtccag gccgcaatgg acgtaaatga caaagagcta 1980  
 10 cttcacatcc gctccaacgt cattctgcac cgggcacgac gtggcaatca ggtcgatgct 2040  
 ttctacgccg cccgggaaga taaatggaaa cgtggcgaag gtggagtacg aaaattggct 2100  
 cagcgattcg tcgattaccc agagcgcata cttcagacgc acaatctgat ggtctttctg 2160  
 tgattcagtg accattttta caaatggtca ctgcaaccgc ggtcaccatt aatcaaaggg 2220  
 aatgtacgtg tatgggcaat caacaagtcg tttcgataac cgggtg 2265

15

&lt;210&gt; 58

&lt;211&gt; 449

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

20

&lt;220&gt;

&lt;223&gt; A polypeptide encoded by SEQ ID NO:56

&lt;400&gt; 58

25 Met Asn Tyr Asn Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Ser Gln  
 1 5 10 15  
 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys  
 20 25 30  
 Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 30 35 40 45  
 Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65 70 75 80  
 35 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 85 90 95  
 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 40 115 120 125

Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 130 135 140  
 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145 150 155 160  
 5 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
 165 170 175  
 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 180 185 190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 10 195 200 205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
 210 215 220  
 Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
 225 230 235 240  
 15 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
 245 250 255  
 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 260 265 270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 20 275 280 285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
 290 295 300  
 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305 310 315 320  
 25 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
 325 330 335  
 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Trp  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 30 355 360 365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 35 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 40 435 440 445

Arg

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 5 <211> 449  
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<220>  
 10 <223> A polypeptide encoded by SEQ ID NO:57

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 Met Asn Tyr Asn Asn Lys Ile Leu Val Ser Glu Ser Gly Leu Ser Gln  
 1 5 10 15  
 15 Lys His Leu Ile His Gly Asp Glu Glu Leu Phe Gln His Glu Leu Lys  
 20 25 30  
 Thr Ile Phe Ala Arg Asn Trp Leu Phe Leu Thr His Asp Ser Leu Ile  
 35 40 45  
 Pro Ala Pro Gly Asp Tyr Val Thr Ala Lys Met Gly Ile Asp Glu Val  
 20 50 55 60  
 Ile Val Ser Arg Gln Asn Asp Gly Ser Ile Arg Ala Phe Leu Asn Val  
 65 70 75 80  
 Cys Arg His Arg Gly Lys Thr Leu Val Ser Val Glu Ala Gly Asn Ala  
 85 90 95  
 25 Lys Gly Phe Val Cys Ser Tyr His Gly Trp Gly Phe Gly Ser Asn Gly  
 100 105 110  
 Glu Leu Gln Ser Val Pro Phe Glu Lys Asp Leu Tyr Gly Glu Ser Leu  
 115 120 125  
 Asn Lys Lys Cys Leu Gly Leu Lys Glu Val Ala Arg Val Glu Ser Phe  
 30 130 135 140  
 His Gly Phe Ile Tyr Gly Cys Phe Asp Gln Glu Ala Pro Pro Leu Met  
 145 150 155 160  
 Asp Tyr Leu Gly Asp Ala Ala Trp Tyr Leu Glu Pro Met Phe Lys His  
 165 170 175  
 35 Ser Gly Gly Leu Glu Leu Val Gly Pro Pro Gly Lys Val Val Ile Lys  
 180 185 190  
 Ala Asn Trp Lys Ala Pro Ala Glu Asn Phe Val Gly Asp Ala Tyr His  
 195 200 205  
 Val Gly Trp Thr His Ala Ser Ser Leu Arg Ser Gly Glu Ser Ile Phe  
 40 210 215 220



Ser Ser Leu Ala Gly Asn Ala Ala Leu Pro Pro Glu Gly Ala Gly Leu  
 225 230 235 240  
 Gln Met Thr Ser Lys Tyr Gly Ser Gly Met Gly Val Leu Trp Asp Gly  
 245 250 255  
 5 Tyr Ser Gly Val His Ser Ala Asp Leu Val Pro Glu Leu Met Ala Phe  
 260 265 270  
 Gly Gly Ala Lys Gln Glu Arg Leu Asn Lys Glu Ile Gly Asp Val Arg  
 275 280 285  
 Ala Arg Ile Tyr Arg Ser His Leu Asn Cys Thr Val Phe Pro Asn Asn  
 10 290 295 300  
 Ser Met Leu Thr Cys Ser Gly Val Phe Lys Val Trp Asn Pro Ile Asp  
 305 310 315 320  
 Ala Asn Thr Thr Glu Val Trp Thr Tyr Ala Ile Val Glu Lys Asp Met  
 325 330 335  
 15 Pro Glu Asp Leu Lys Arg Arg Leu Ala Asp Ser Val Gln Arg Thr Tyr  
 340 345 350  
 Gly Pro Ala Gly Phe Trp Glu Ser Asp Asp Asn Asp Asn Met Glu Thr  
 355 360 365  
 Ala Ser Gln Asn Gly Lys Lys Tyr Gln Ser Arg Asp Ser Asp Leu Leu  
 20 370 375 380  
 Ser Asn Leu Gly Phe Gly Glu Asp Val Tyr Gly Asp Ala Val Tyr Pro  
 385 390 395 400  
 Gly Val Val Gly Lys Ser Ala Ile Gly Glu Thr Ser Tyr Arg Gly Phe  
 405 410 415  
 25 Tyr Arg Ala Tyr Gln Ala His Val Ser Ser Ser Asn Trp Ala Glu Phe  
 420 425 430  
 Glu His Ala Ser Ser Thr Trp His Thr Glu Leu Thr Lys Thr Thr Asp  
 435 440 445

Arg

30

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&lt;211&gt; 26

&lt;212&gt; DNA

35 &lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; An oligonucleotide

40 &lt;400&gt; 60

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25 <210> 63

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<223> An oligonucleotide

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26

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<212> DNA

<213> Artificial Sequence

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<223> An oligonucleotide

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<211> 25

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<213> Artificial Sequence

<223> An oligonucleotide

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25